

## SAFETY FORECAST

Fine and Clear  
No accidents forecast  
for the near future

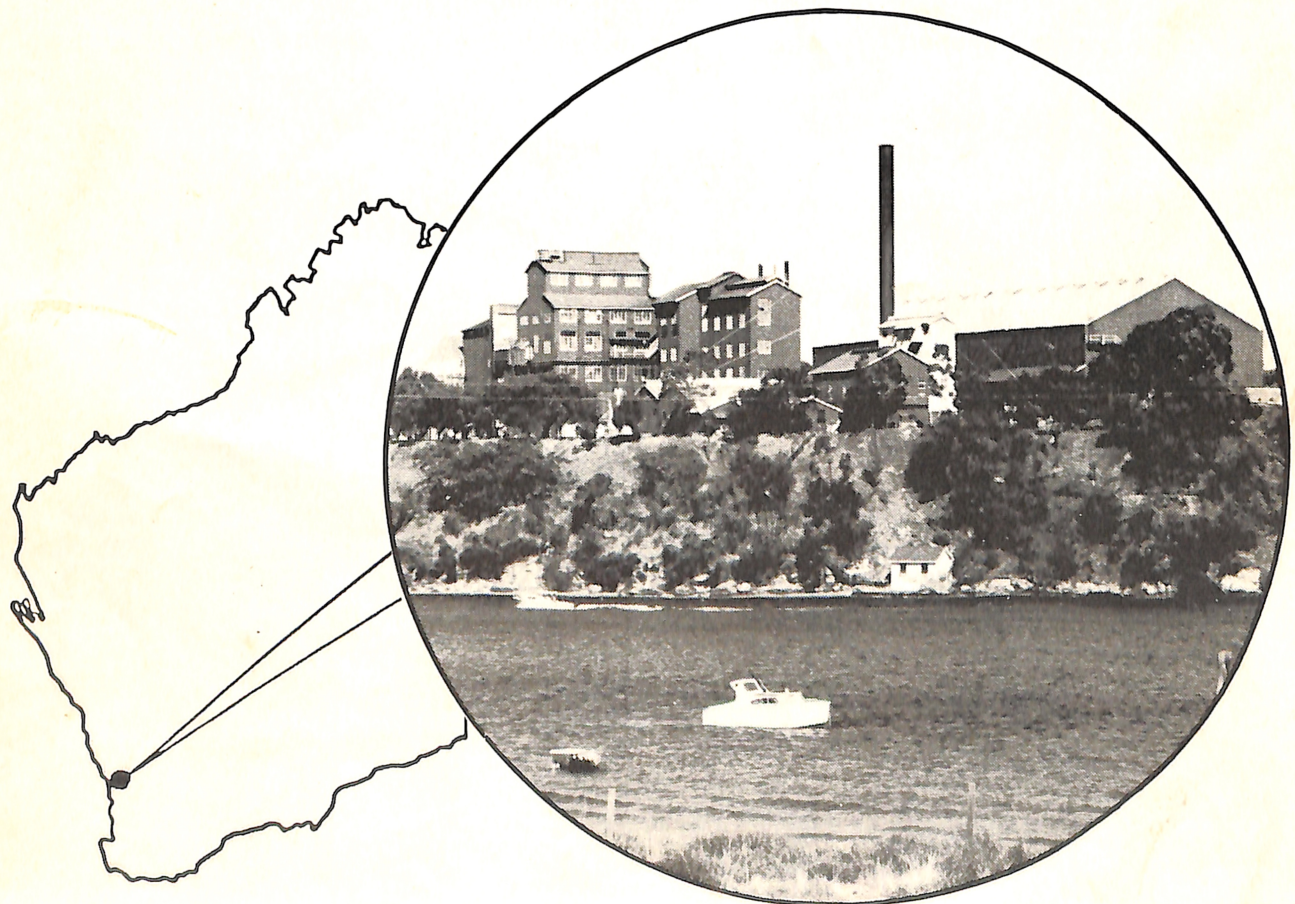
MAY 1980

3rd  
Edition

# The Western Australia Region of CSR Sugar Division

## COTTESLOE REFINERY 50 YEARS OF REFINING

1930—1980





# NORTH FREMANTLE RAW SUGAR STORE

## What is the Store?

The store was built to hold 17,500 tonnes of bulk raw sugar for the production of refined sugar at CSR's Cottesloe Refinery at Mosman Park.

About four ships a year deliver raw sugar from sugar mills in Queensland. With each shipment sugar is trucked directly from the wharf to the store for 24 hours a day until the ship is emptied. The sugar is then trucked to the refinery as required and in daylight hours only.

## Why was it built?

In order to economically discharge a ship the operation should be carried out for 24 hours per day. The primary reason for building the store at the North Fremantle location was to remove the need to deliver raw sugar to the refinery at night, thus eliminating the annoying effects of truck noise on residents in McCabe Street, Mosman Park.

The store has also allowed larger ships to be used and hence economies in transport costs.

## Who designed it?

The store was designed by CSR's Technical Services Group in Sydney. Although the basic design is largely determined by the function of the building, particular attention was paid to aesthetics and the advice of our consultant architect, Mr R. McK. Campbell, was obtained on some aspects. Trees are being planted at the southern end of the property.

## Who built it?

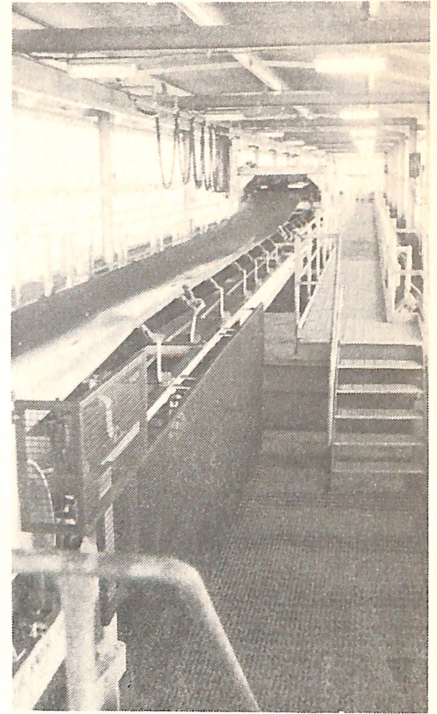
CSR's Technical Services Group was the project manager and Watts Constructions was the contractor responsible for the building and civil work.

The store was completed on time in about six months at a total cost of \$1.5 million which was 25 per cent less than the original estimate.

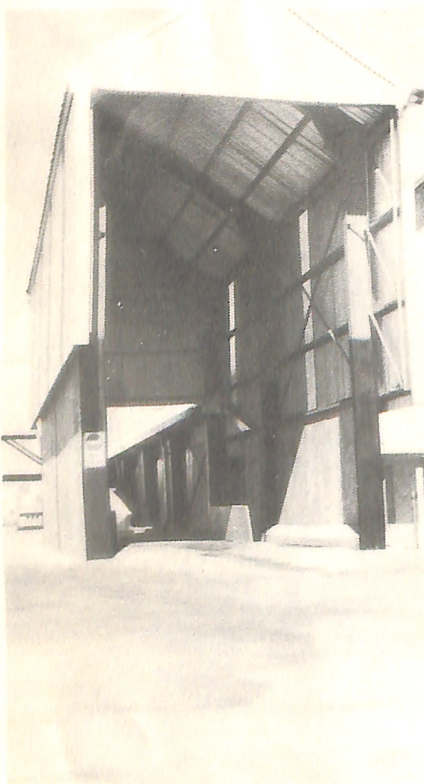
## Some technical details

The store is built on land leased from Westrail and the building is a 72m long by 40m wide partol framed aluminium-clad structure with a post tensioned concrete floor and 3.7m

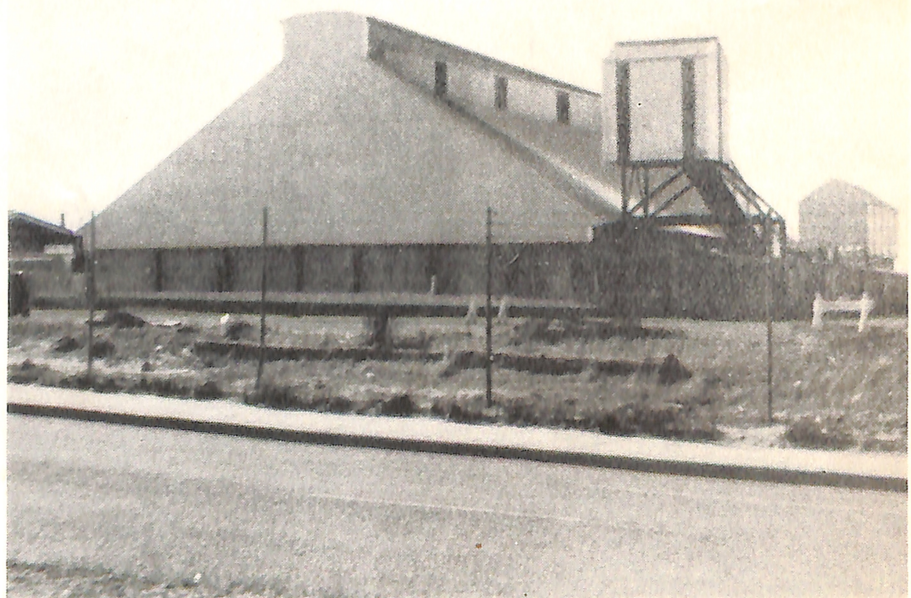
high retaining walls. Conveyors are installed to receive sugar into the store at rates up to 600 tonnes per hour.



North Fremantle Raw Store C3 Conveyor in the roof of the raw store.



The discharge bay for trucks from the wharf.



The North Fremantle Raw Store — a southern view.



# SUGAR REFINING

The second article in a series of articles explaining the Cottesloe refining process.

In **part 1** of these articles we explained how raw sugar is taken into the factory, mixed with "raw washings" and the raw washings spun off again in the affination fugal. The washed sugar is then dissolved, treated with lime and carbon dioxide in the carbonation process and then filtered to eliminate the calcium carbonate mud.

Raw sugar has gone through these three stages of refining to eliminate as many impurities as possible. Raw sugar is approximately 98.8 per cent pure sucrose, while refined white sugar is 99.9 per cent sucrose and the majority of these impurities are eliminated during affination, carbonation and filtration. After filtration the liquor is ready to continue the refining process. The next stage in the process is decolourisation.

The liquor is pumped to a small buffer tank which feeds the char cisterns. The liquor enters the top of the cisterns which have been filled with bone char. It flows by gravity down through the char coning into direct contact with the char. The bulk of the colour present in the raw liquor (after filtration) is

absorbed directly onto the active carbon surface of the char although part of the colour is removed by a form of ion exchange in which the positively charged colour molecules are attracted to the negatively charged surfaces of the bone char. Approximately 90 per cent of the colour initially present is removed in this process and the colour of liquor coming off is a light straw-like white wine.

Allied with the process of char decolourisation is the reactivating of the bone char. The char only has a short lifespan of activity before it becomes too "clogged up" with colour molecules. All the sugar liquor in the cisterns is washed off with hot water and once this process is completed, the cistern is drained of all water.

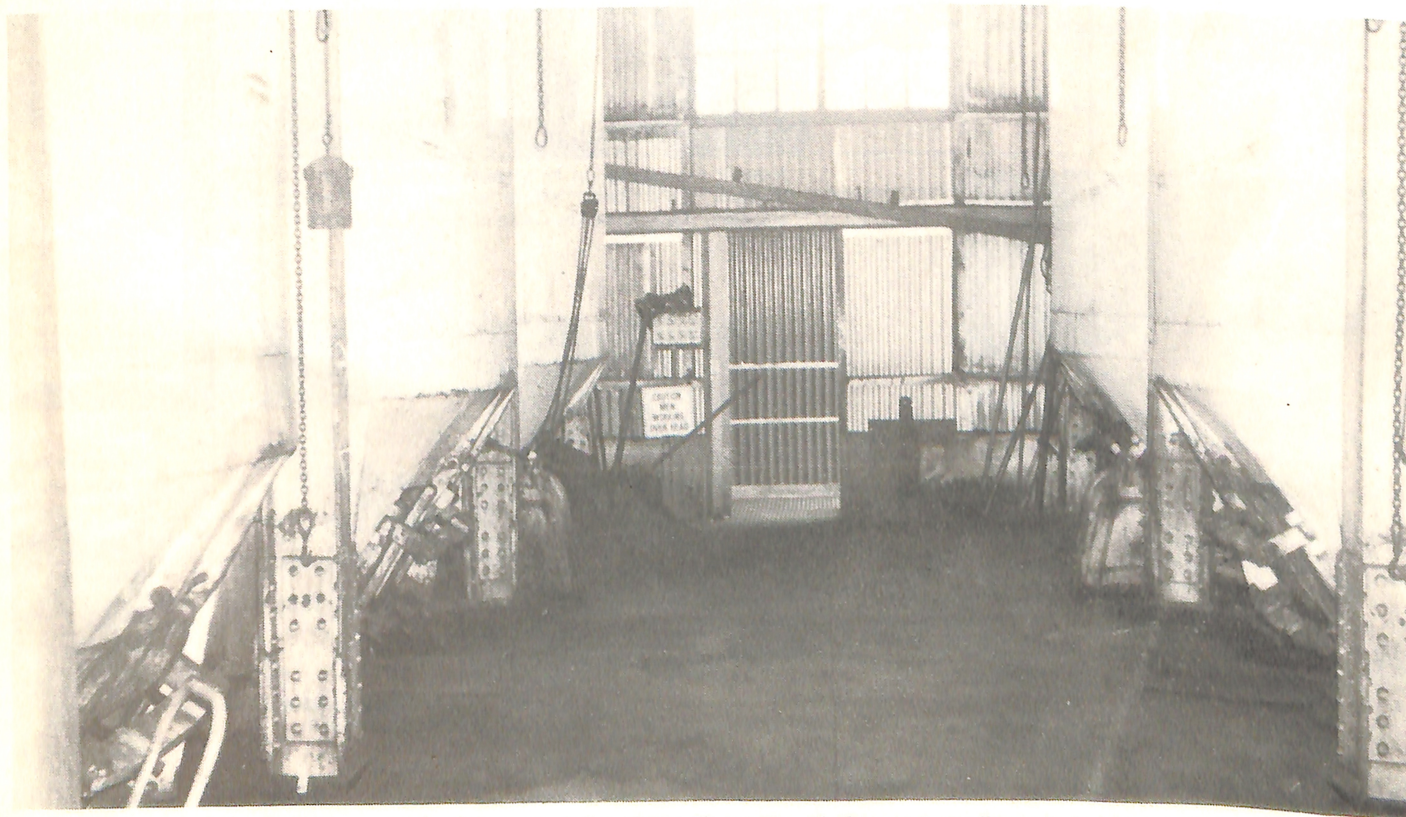
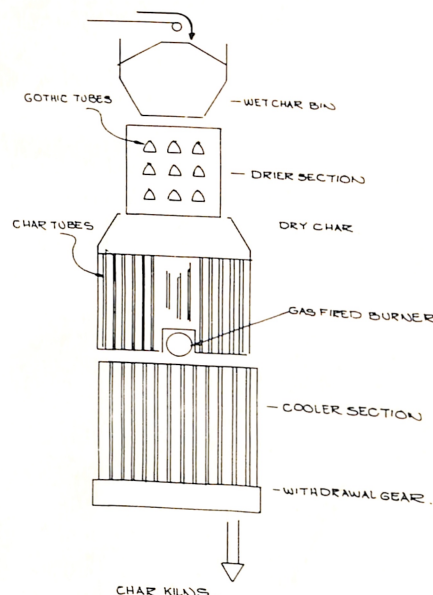
The wet char is pulled out of the cisterns and conveyed to the wet char bins. From here it enters the drier section of the char kiln where the hot gases from the kiln heat the char and dry off much of the water still left.

The char then enters the kiln area. It is kept in pipes within the kiln and never comes into direct contact with the heating flame. The char kilns at Cottesloe are heated by burning natural gas. The char is heated to approx-

imately 600° C in the absence of air so that the carbon present is not converted to carbon dioxide. It is this process which "activates" the carbon so that it can absorb the colour molecules in raw liquor.

The char then enters the cooling pipe area of the kiln before being mechanically withdrawn and stored again prior to use.

The stage of char decolourisation prepares the liquor for the next stage of crystallisation which will be discussed in the next issue.



The Cottesloe Char Cisterns — each cistern contains about 35 tonnes of char and raw liquor is fed by gravity to the cisterns.



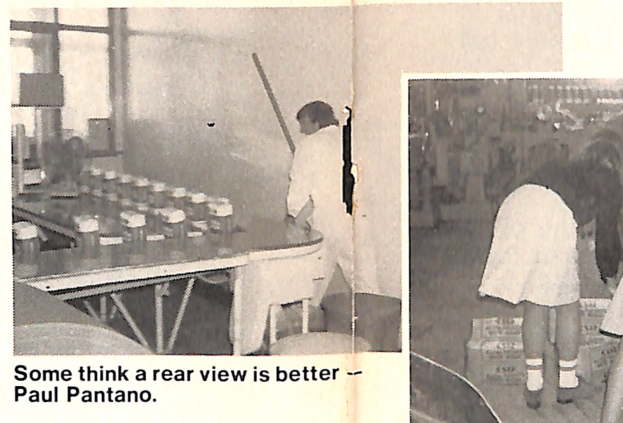
# Around the Factory



An engineer's work is never done — especially when he doesn't do it.  
— Bruce Bonney.

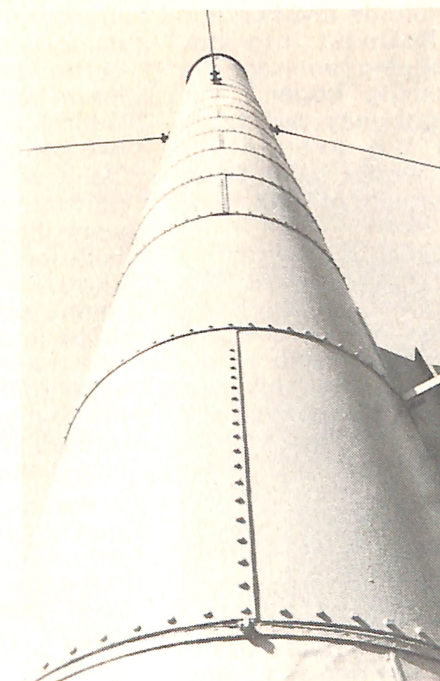


I guess when the truck moves I've got to move and two movements a day is enough for anyone.  
— Don McDonald.



Some think a rear view is better — Paul Pantano.

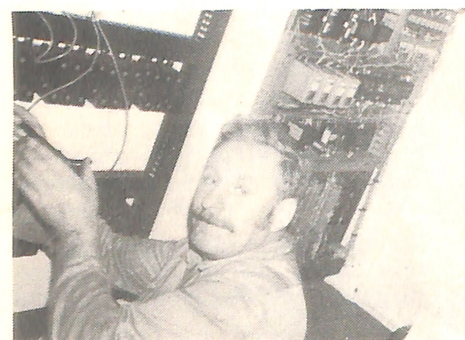
— and in some cases the view is pretty good — Janice Turner.



We offer this view of the boiler stack to those who need guidance.



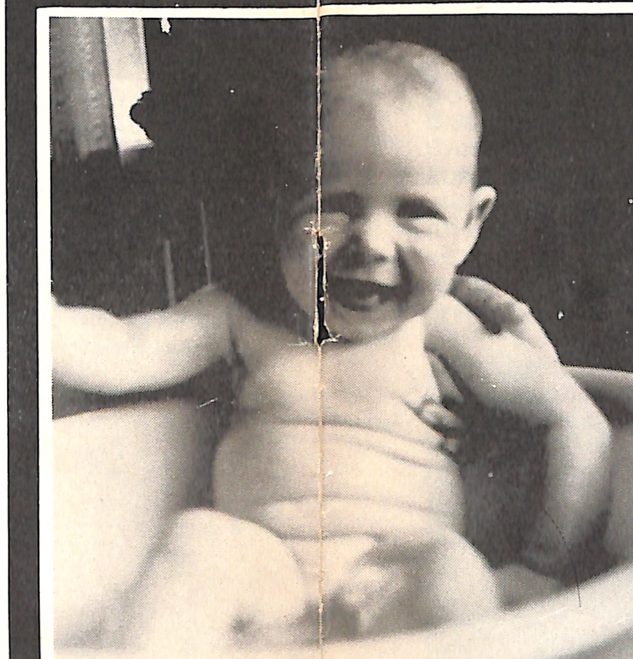
I know I've got to come to work sometimes but I won't let it interfere with my little pleasures.



This photo PROVES Malcom does work — Malcom Williams.



Now if we break up this table and put it in the boilers we'll save some energy — George Daniels, Jack Brooks, Colin Baker, Les Farmer.



Due to the great demand we present our first nude centrefold. We can't reveal her name but she's a rose by any name.



I whistle as I go to work and sing a happy tune — Bob Slattery.



The best wall posters in the factory "Funny Bunny", "Gentleman's Bathroom Companion" and the "Italian Waterhole".

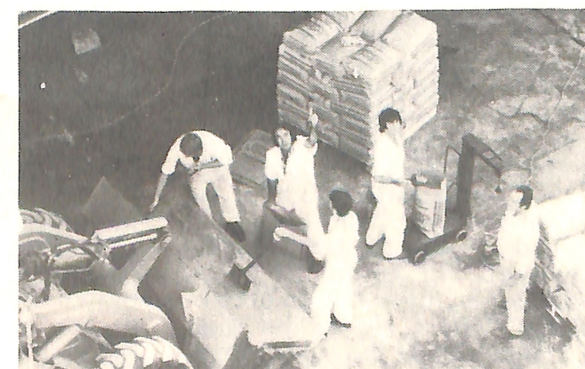
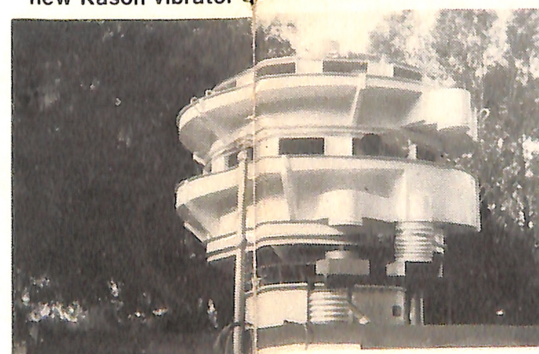


LEFT: I don't know why they don't pack me, I'm 70 kg of sweetness — Laurie Lahiff.



ABOVE: My life is dull, colourless and boring and what I need is a multicoloured popsicle — Eileen Lawford.

Cottesloe's answer to the moon machine — the new Kason vibrator about to take off.



The Workers — Dave Scorer, "Doc" Farley, Laurie Lahiff and Bill Putley. While Danny Adams does his roadworker impersonation.



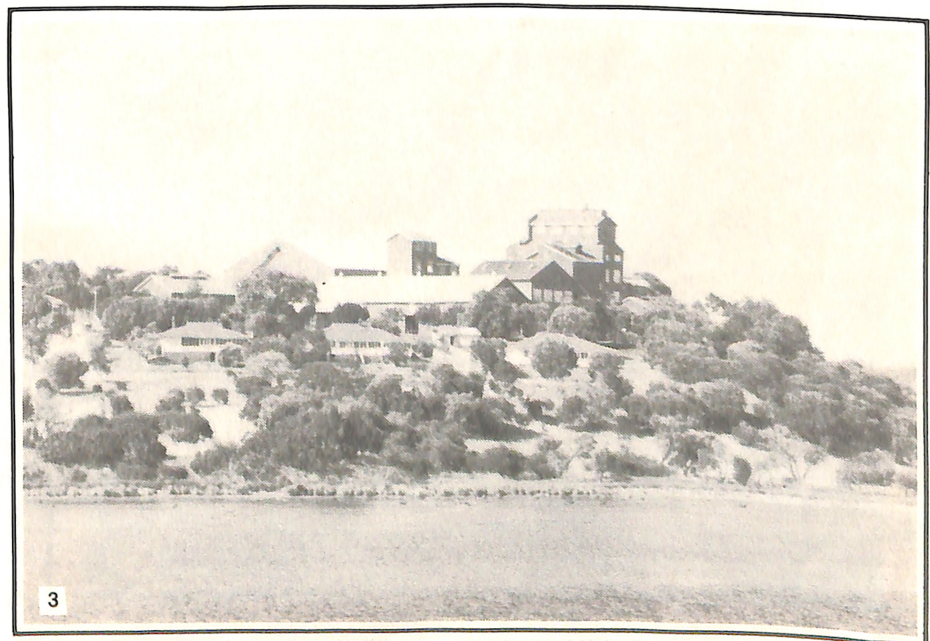
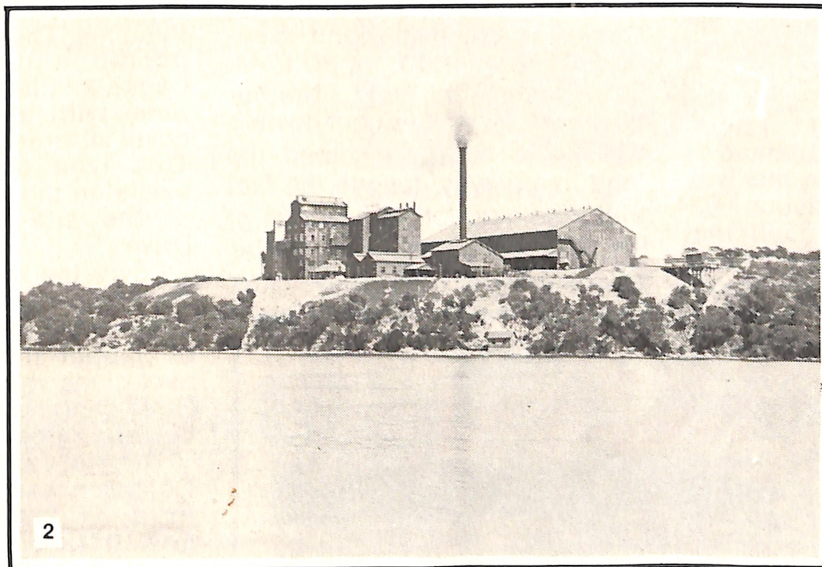
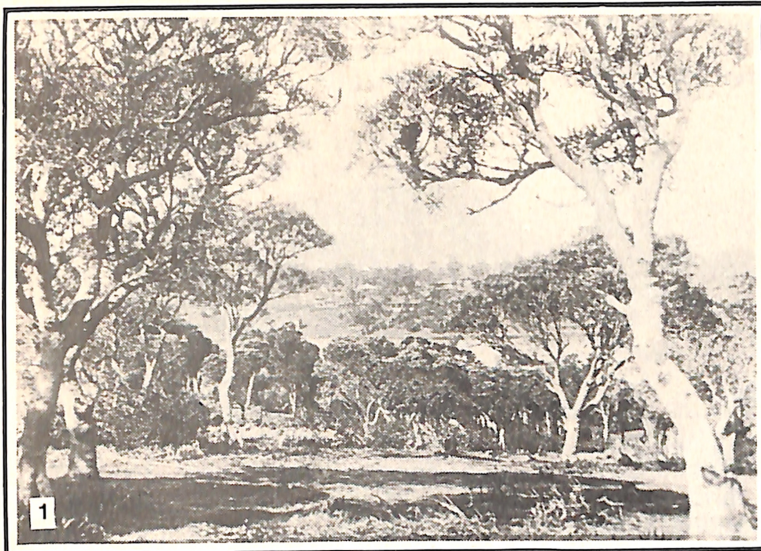
RIGHT: Equal rights for lab girls — if they can wear blue overalls, so can we — Debbie Mangini.



# COTTESLOE REFINERY

1930-1980

*50 Years  
of Refining*



- 
1. Swan location 1979
  2. View from left bank 1930
  3. Modern view
-



# HISTORY OF COTTESLOE REFINERY

CSR, or the Colonial Sugar Refining Company, as it was in the nineteenth century made its first incursions into Western Australia in 1897 when it established an office in Henry Street, Fremantle.

It was not until 1927 that the decision was made to build a refinery in this State, when the following extract was delivered by the Directors of the company.

"Moreover we have come to the conclusion that the time has arrived for the establishment of a refinery in West Australia, and as a first step we have bought land which seems to be a suitable site. Before incurring any further expense we have of course to discuss the position with the authorities, especially as to rail connection, for no site was available where we could, as at other centres, land sugar and coal from ocean steamers at the refinery door.

On the whole we think the prospective addition to the refining capacity can be obtained at about the same cost in this way as by adding to the existing factories, and there is no doubt that West Australia is entitled to its share in providing the sugar supply for its own population."



Swan Location 80.

Thus it was that twenty-five acres of land which is titled Swan Locations lots 79 and 80 were purchased in 1927. Lot 79 had been an original grant to the Surveyor General John Septimus Roe in 1840; lot 80 to Mr E.H. Pollard in 1841. Neither they nor any subsequent owners appear to have developed the land in any way despite the fact that adjoining lot 78 was one of the first productive farms in the colony. Known as Billy Goat Farm, it was still in use as a dairy

when construction of the refinery was commenced in 1928.

From early photographs it appears that most of the site was still clothed in natural bush at this time. The upper levels supported a dense growth of banksia, blackboy and zamia palm with associated ground cover of creepers and grasses. This type of vegetation still exists on the unused four acres of the site fronting Downey Drive.

Down the limestone scarp to the river bank the vegetation thinned out to a sparser growth of peppermints, sheoaks and river gums, the occasional Swan River cypress, paperbarks, wattles and titrees.

The first estimate of the cost of Cottesloe was prepared in 1927 for a 400 ton house. In 1928 a new estimate was prepared which eliminated a number of items included in the first costing. The reduction brought plant to a minimum — bare essentials for handling 300 tons per week. The only spare plant being one char kiln and one feed pump. There was no separate melthouse, but rather a combination of melting and filtration in a two-storey lean-to against the raw store. There was no separate crystalliser house but this work was to be done in the main pan house. There was no refined store, only a delivery floor. The refined sugar was to be stored in the raw store or in the Fremantle store. No provision was made for making bags, with these being supplied from one of the larger refineries (sugar was packed in hand sewn hessian bags at the time). The estimated cost for the refinery was 190,000 pounds.



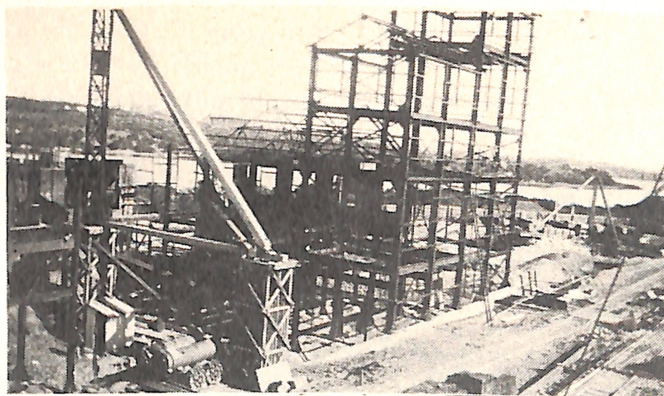
View from left bank.



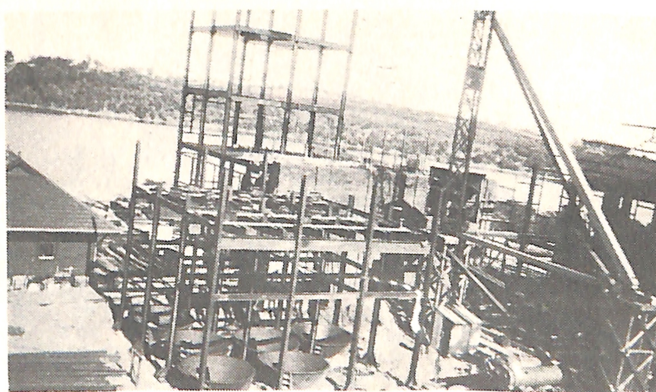
Swan Location 79.



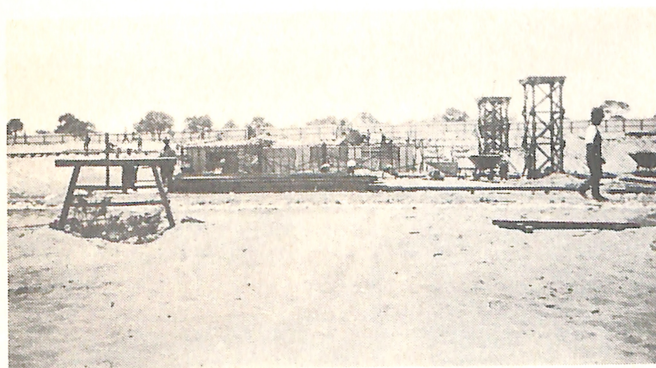
Construction was started in October 1928 but the refinery was not ready to commence work until May 1930. The erection period contrasts with 9 to 10 months taken to erect Glanville (South Australia) in 1891 and New Farm (Queensland) in 1893. The main buildings of these were of brick as against iron at Cottesloe which should have given the latter an advantage as regards time of construction. An indication of the increase in cost of such factories may be gathered from the fact that Cottesloe cost more than twice as much as the combined costs of Glanville and New Farm.



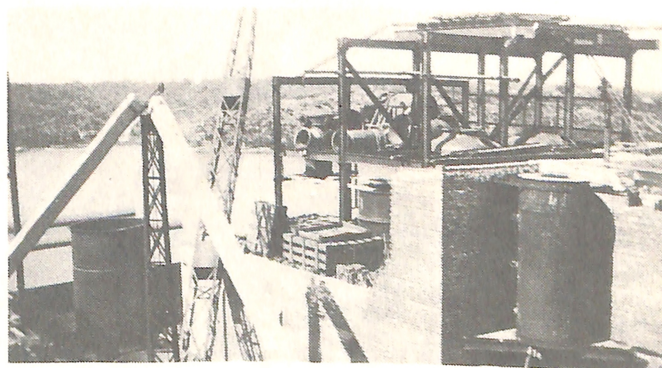
Melt house and filter floor with main beams now in position. The pan house is well under construction.



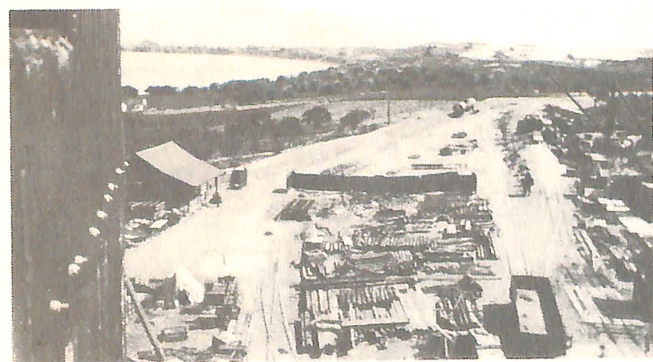
Char End with the Pan house at rear.



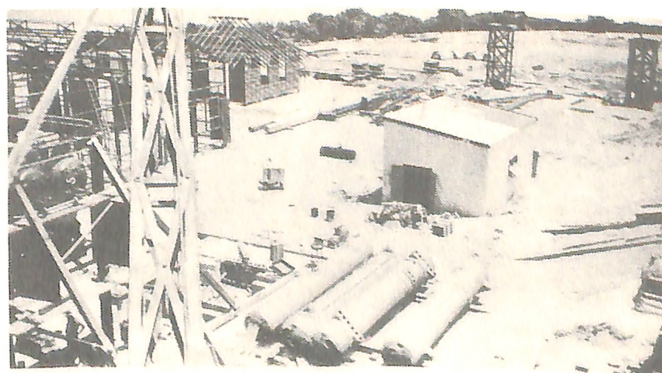
The construction begins — after levelling of the site the foundations of the pan house were laid.



The Pan house with A and B pans in position.



Early stages of construction of melt house.

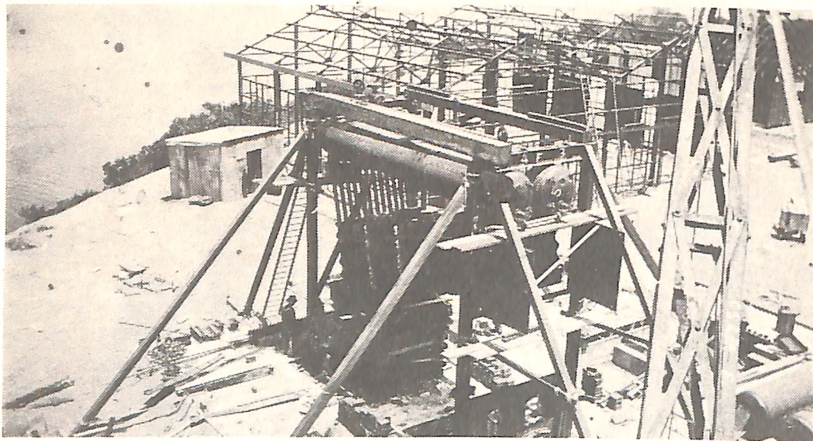


No. 3 Boiler drums laying in wait.

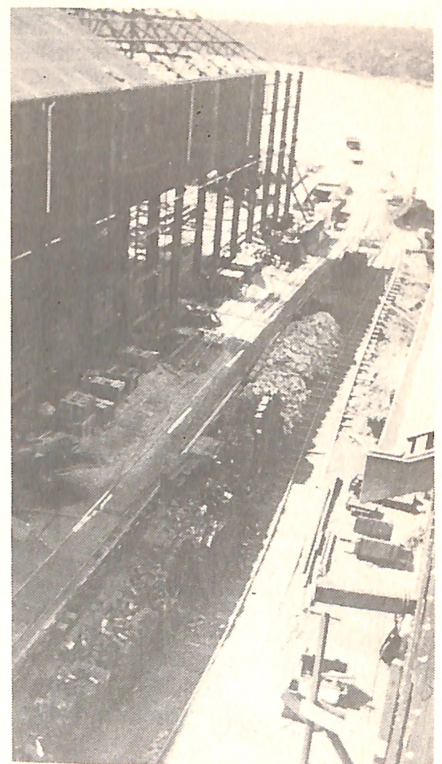


The cost of building to the end of May 1930 was 240,000 pounds. The reasons for the great difference between the estimated cost and actual cost was an increase in material

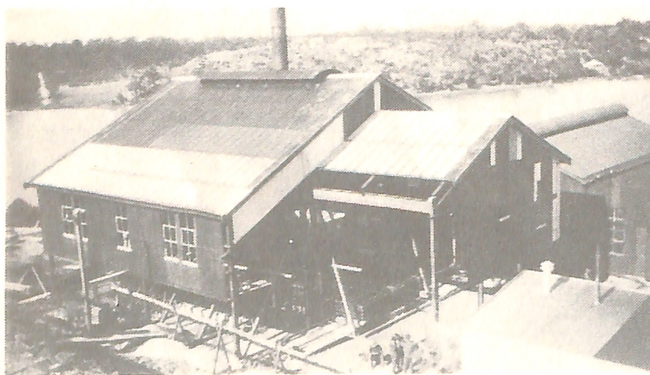
costs and that the labour worked slowly. With the fear of unemployment staring the workers in the face "go slow" methods were employed for this was the time of the Great Depression.



No. 3 Boiler in the early stages of construction. The boiler drums have been lifted into position.



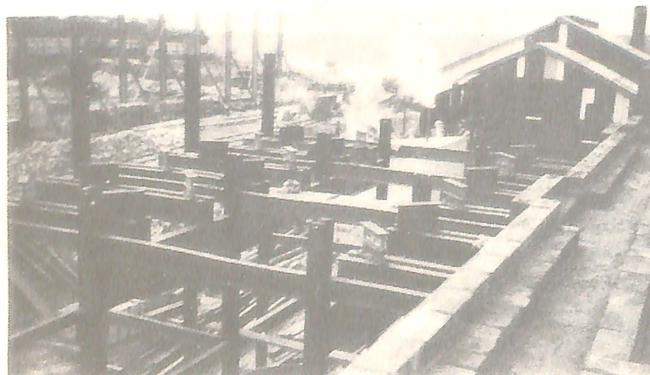
Rail line to Boiler station. Coal was brought in by rail, broken up with hammers on the floor before being fed into the boiler by hand shovel.



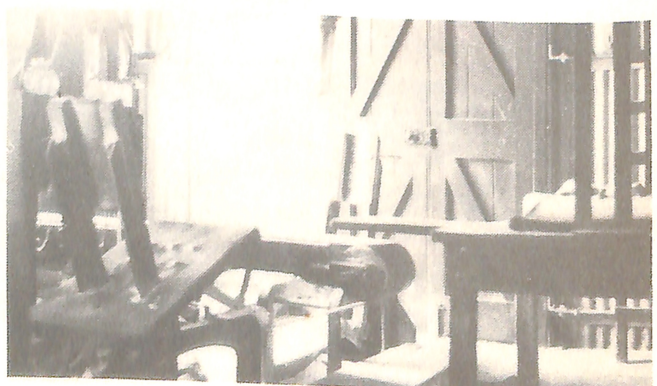
View from Pan house with char end under construction and Boiler Station completed.



View of (from left to right) Workshop/store, laboratory and Engineers' office.



Boiler Station construction finished — view from the Raw Store.



Part of the early Packing Station.



On the 19th May, 1930 Cottesloe Refinery began operations. All the erection work had been carried out by local labour under the guidance of the company's eastern state "experts". The majority of people working in the factory came from Western Australia, however some positions had to be filled by people with prior experience in the work. The three sugar boilers, Tom Russell, George Gibbons and Jack Strong, came from Glanville and Pymont refineries. To become sugar boilers they had had to serve three year apprenticeships and consequently with no experienced sugar boilers in Western Australia, they were imported from the other refin-

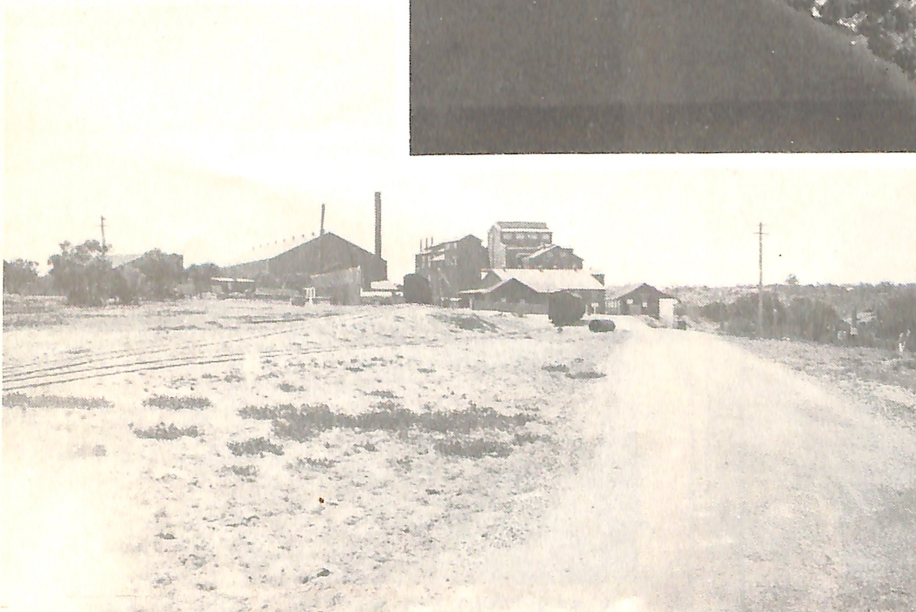
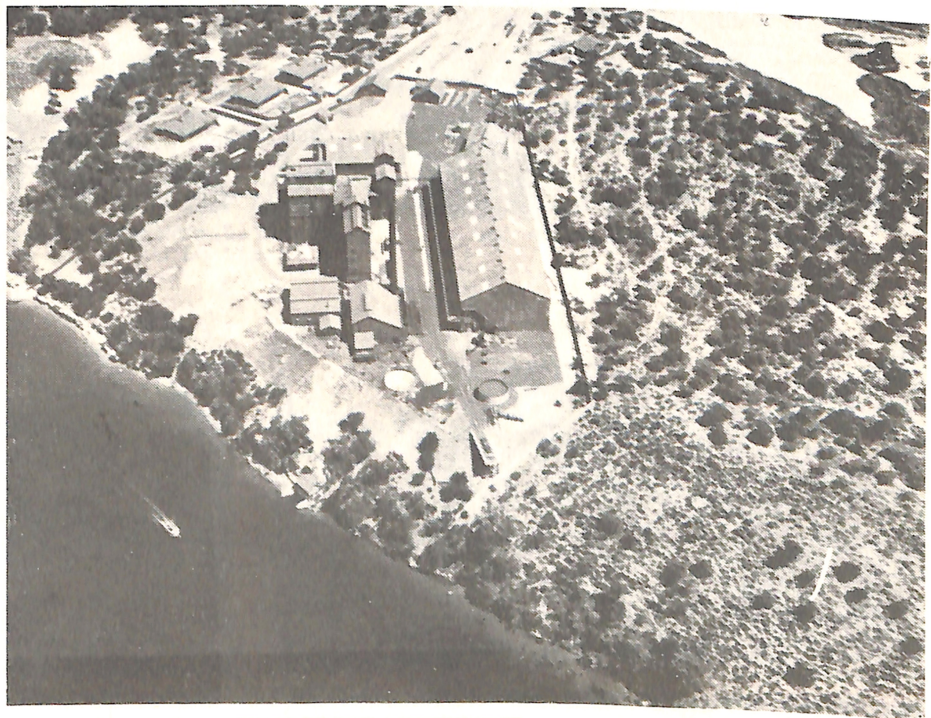
eries. The Refinery Manager was Mr T. (Tom) Steele who had been present during the construction of the refinery. The Production Superintendent, or Chief Chemist as he was in those days, was Mr R. (Roy) Saddington, who later became the refinery manager. There was 13,000 tons of raw sugar on hand ready for refining stacked in bags 45 tiers high in the raw store. This represented almost a full years supply of sugar to be melted.

Cottesloe refinery melted 9,556 tons of raw sugar in its first period of operation to December 1930 and 16,182 in its first full year of operation (January to December 1931).



*Mr. T. M. Steele was engaged in October 1911 as a Junior Chemist. He saw service on the mill side in both Queensland and Fiji before transferring to Chelsea Refinery on shift work. He was appointed in October 1929 as the first Manager and became Factory Manager at Pymont a year later when this position was created. In 1933 he was appointed Manager of Yarraville and in 1943 returned to Sydney as Manager of Pymont, from which position he retired in 1953.*

Aerial view of refinery 1931.



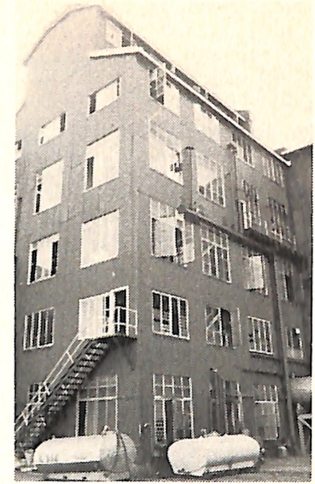
Refinery entrance 1930.



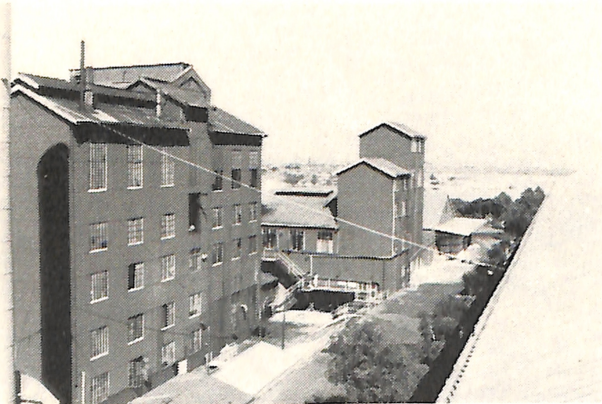
The refinery has become a landmark, Dr George Seddon, in his book "Swan River Landscapes" wrote —

"The CSR refinery near Point Roe shows that the needs of industry and the landscape amenity need not conflict. The sheer bulk of the buildings is impressive, they sit well on the site and the roof lines compose and recompose in Gothic variety

as one moves around the river. It might seem comically extravagant to speak of the Stately Factories of Western Australia; where but in an industrial complex such as this can one find a functionally related group of tall buildings, varied in outline, uniform in style, and finish. There is a cluster of small low buildings huddled around the base, like the cottages of a medieval town."



The Pan House epitomises the stateliness of the refinery buildings.



The char house and affination station 1980.



The silent stature of the refined store.



View of raw store, char house, melt house and refined store from the office block.



The office block in its tree lined setting.



A view of the refinery from the entrance.



The weighbridge and office block with the Swan in the background.

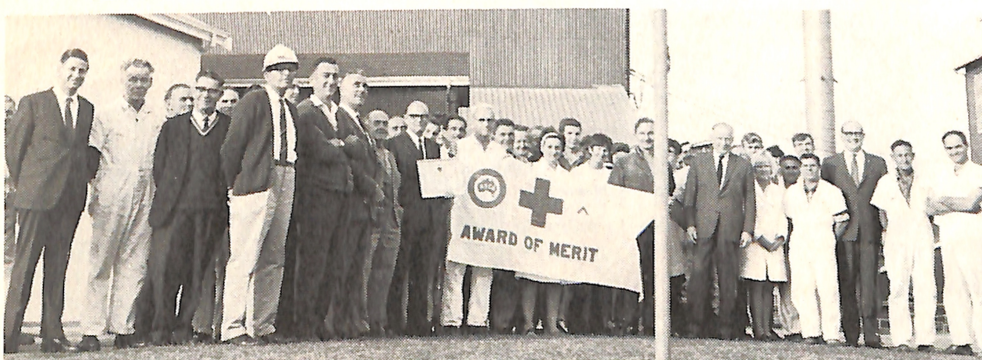


## Notable visitors

Over the years, Premiers and Governors-General have visited the refinery.



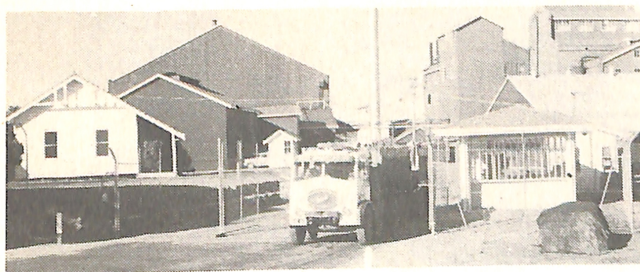
Toni D-Amico, Sir Paul Hasluck, Dorothy Walker, Joe Terribilie, Premier Brand, Mr. McKenzie.



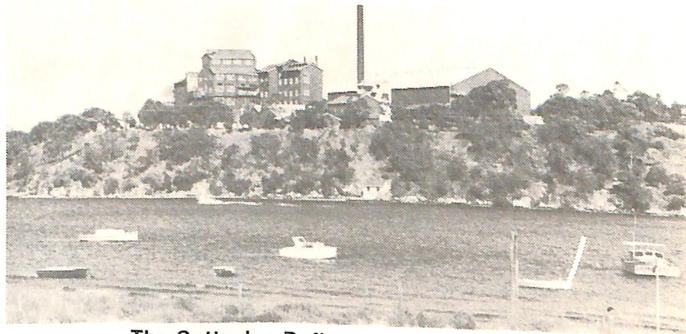
Safety has always been high on the priorities of the Cottesloe workforce and numerous awards received over the years. This photograph is a recording of the Award of Merit in 1968.



Branch Manager Mr. Makinson, Sir Charles Gairdner, Mr. G. Hooke.



The refinery entrance hasn't always had the trees and gardens of present day. Note that at that time Bell Bros. delivered raw sugar to the refinery.



The Cottesloe Refinery — a modern view.



The Twenty Year award winners. These were first presented by CSR in 1974.  
L. to R. Back Row: D. Bailey, S. Abercrombie, H. Daniels, E. Daniels, C. Hansen, M. Breen, M. Jez, K. Snell, W. Scorer, L. Costa and R. Wiltshire.  
Front Row: G. Bower, J. Brooks, G. Franchina, R. Hansen, P. Ravipto & A. Adams.

Others to receive Twenty Year awards since are: A. Monaco, R. Culkin, W. Stephens, L. Farmer.



A modern Hesser station was installed and operational in 1964.



# The people of Cottesloe Refinery 1980



L to R: N. Smithson, J. Nicholls, N. Lyons, K. Coddington, W. Smith, Mrs A. McLauchlan, Miss K. Coddington, Mrs C. Wellington.



P. Kelly, G. Daniels, R. Wilson, J. Brooks, C. Baker, L. Farmer, P. Brown.



N. Henessey, G. Turnbull, D. Copeland (back), I. Ripp, J. Fleming.



R. Lowndes, M. Kentros, D. Kelly, D. Brown, D. Cleverly, Mrs S. Barrett, Miss E. Lawford, J. Cameron.



A. Creeper, A. Poole, P. Maxted, R. Culkin.



A. Forde, D. Ellis, G. Dwyer, D. MacDonald.



Mrs F. Maxey, J. Sainsbury (seated), M. Jez, Mrs J. Turner, Mrs C. Robertson, Mrs P. Armstrong, G. Bower.



C. McKenzie, R. Wiltshire, D. Glenn, Miss D. Mangini, J. Abbott, Miss P. Waters, C. Elliott, Mrs C. Stewart, W. Scorer, Miss T. Rose, Miss D. Jones, H. Williams, J. Phillimore.



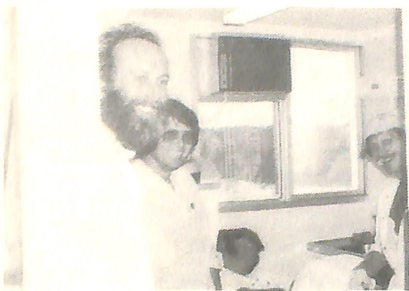
D. Scorer, L. Lahiff, D. Adams.



J. Pollard, E. Lewis, M. Legg, H. Daniels.



P. Pantano, S. Rowe, R. Williams, K. Newton, R. Milne.



J. Branch, H. Williams, A. Sedgwick, J. Watson.



A. Daniels, Mrs A. Bowyer, Miss V. McKirdy, A. Swiney.

Missing from the photos  
B. Bonney, F. Prandi, G. McNamara, A. Small, M. Williams, C. Cull, R. Spear, D. Marsdon, Miss A. Brown, B. Fletcher, A. Monaco, W. Arbidans, R. Firth, W. Putley, R. Slattery, S. Wachmer, D. Heldt, E. Daniels, A. Farley, G. Terribile, J. Lawson, P. Wilson, W. Stephens



## INS AND OUTS' INS AND OUTS

You've all heard about the unlucky fisherman and the one that got away. Well, we heard a story about one of our Shift Superintendents who went fishing during the recent heavy rains. Having been told by a mate that the snapper were "on" in Cockburn Sound he set out with lures, bait etc., to catch a fish-shops worth of fish. Three hours later, soaked to the skin and the only blood was his own, he was approached by another fisherman to lend him some bait. He did so only to see the new fellow land a 10 kg snapper inside eight minutes. He then had the audacity to ask for help to get the fish off the line. Hayden then packed up in disgust.



Doug's been slacking and hasn't been mowing his lawns.

— Doug Ellis

Everyone dreams and works for their few weeks away from all the worries, trials and tribulations of day to day life. So imagine Ron Wiltshire's consternation when having driven over 200 miles to Augusta with caravan in tow, pitching a tent and the next morning getting out to Jack Brooks bright and bouncy voice. Actually we're not too sure just who was the most consternated.

Kevin Newton is certainly making hay out of his greyhound. The former first grade rugby league footballer is a part-owner of the brilliant sprinter now stayer, Candle Wind. We don't think Kevin could ever catch the bunny but his dog is certainly getting within a hare's breadth. His record now stands at 15 wins.

Don MacDonald and Bill Putley recently tried their luck at deep sea fishing. They set out from Fremantle and headed west past Rottnest into the beyond. Dropping anchor and lines the fishing began. The number caught may not have been great but even Bill's rotund form would have been filled by the weight of the catch.

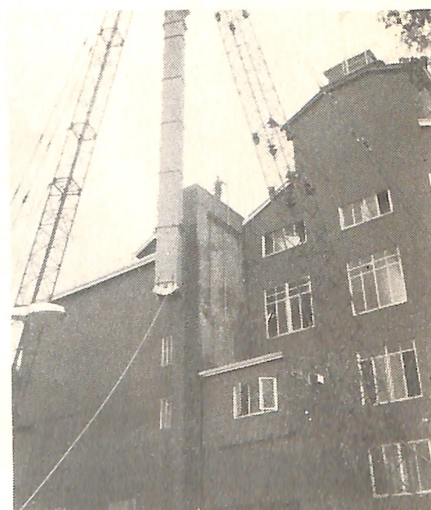
First Aid courses have at times seemed to some of us a necessary evil. Eileen Lawford found recently that being able to do heart massage does come in handy. Eileen was called upon to put her knowledge to use when a man collapsed near her in the city. Eileen continued heart massage until ambulance men arrived on the scene and carried on the resuscitation.

You might be interested to know that 'B' pan, the same one being used now has quite a history. It was originally installed at Chelsea Refinery in New Zealand in 1889, then transferred to Glanville Refinery in 1915 and finally transferred to Cottesloe Refinery in 1929. The only original parts left are the top and the condenser. The top is planned for replacement next year, all other parts having been replaced previously. Many will remember the replacement of the collandria with anguish and amusement.

Did you know that, having taken great pains to establish the Fremantle Raw Store security system, and ensure that all parties (fire brigade, Wormalds Security and police) were fully informed, that on the morning of 20th March at 5.30 a.m. Colin Elliott received a call from the Watchman informing him that the security alarm had been activated. Being eager to answer the call, Colin diligently rushed down to the store. However, he found no one about, so let himself in to check out the system. No sooner was he inside and at the operations room to examine the system when two dark figures approached him, both carrying guns. Yes folks, you guessed it. It was the police and wanting to know why, who and what Colin was doing at 5.30 a.m. at the raw store.

An expedition was held to make an assault on the crab population at Mandurah on the night of the 19th March. Approximately eight dozen crabs (all correct size) were caught in 1¼ hours with Russell Spear and Colin Mackenzie being the only two caught by revengeful crabs. Colin was using the spear (no pun intended) technique — his were those crabs with the extra hole (or at times holes) in their shells. Fortunately his feet remained unholy. For all the facts, just ask Ron Wiltshire for his recipe for crab and asparagus soup, how he bought his baby's bath (a story he refuses to tell any less than eight times) and which crabs were his.

We've come to the conclusion that not all those jokes about the Irish are so wrong after all. Recently heard that one of the Irish Shift Operators who shall remain nameless, but who works in the char end and it's not Steve Rowe or George Daniels, found a Dugite (W.A. brown snake and highly poisonous) underneath the melt house raw washings tank. Not really realising the danger, the snake was picked up and carried out 200 metres down to the river flats and let go.



There have been several major constructions carried out in the refinery in the last 6 months. The new liquid sugar number 4 plant, brown sugar bin and elevator, Kason vibrating screen and reconstruction of the upper and lower liquor stage. However, one of the more spectacular was the installation of the new wet sugar elevator. Two cranes were used in conjunction to lift the 6 tonne, 18 metre elevator up to the roof of the drier house and lower it into position.



## The moving lager can

Sugar is not only used in cups of tea and coffee, but forms one of the basic ingredients for everyone's favourite drink — beer.

Recently the Swan Brewery got rid of their old green bulk liquid sugar tanker and replaced it with a large movable beer can. With its brilliant red, white, gold and black duck paintwork the moving lager can stands out on the highways wherever it goes.

The tanker carried almost 17,000 litres of liquid sugar per load in comparison with the old tankers load of 9000 litres. In actual fact the new tanker is an extension of the old tanker repainted and kept to its present length only by the limitation of our weighbridge which required its wheelbase to be no more than 10 metres.

Bryan Palmer is the happy-go-lucky driver of the Scania prime mover. With its newer and bigger motor the truck is able to do the round trip to Cannington in approximately 2½ hours although this time is sometimes extended when the crevatted Bryan takes time out to 'chat up' the laboratory girls.



Bryan Palmer and his "Black Duck" Swan Brewery tanker.

## SWAN VALLEY WINES

With the oncoming of winter one of the attractions which the eastern states "permanent visitors" to Cottesloe find both relaxing and warming are visits to the nearby Swan Valley Vineyards. The number of vineyards and quality of wines produced, rivals any area in Australia. While we can't mention every vineyard the following are a few of those more frequently visited on our little visits to the vineyards.

**Contiville** — on Wanneroo Road, between Greenwood and Wanneroo is the small vineyard run by Paul Conti and his wife. A number of very good table wines are produced here including a white Frontignac which is quite sweet, a Mt Barker Riesling and an award winning Shiraz. However perhaps the best value are the Vintage Port and flagon wines.

**Swanville** — produce a great variety of table wines not worth tasting, however at the other end of the scale are a Pipe Port, Tawny Port, Liqueur Muscat and Vintage Port to rival any produced in north-eastern Victoria.

**Gnangara Estate** — although rarely open for tasting if you're lucky you'll find a couple of

superb Shiraz's on tasting and a very pleasant Rose.

**Benara Wines** — another of those vineyards to produce top value and quality fortified wines. The ports are well known for their excellence of quality.

**Sandalford** — if you want a pleasant afternoon of wine tasting in quantity then this is the place for you. While the quality of their table wines is supposedly high again they produce two very good Vintage Ports and a vintage white wine Sandalera which is well worth the trip.

**Houghtons** — again produce a number of white and red table wines. However in their case the table wines are quite drinkable. They also produce two of the best liqueur Frontignac and Tokays in Australia.

The Swan Valley from the above examples is obviously a great producer of fortified wines. Beers great in summer but there's nothing better in winter than to put your feet up in front of the heater read a book and sip a glass of port or muscat. If you haven't tried the vineyard rounds or that glass of port then hurry and join the imports who make this a regular feature of their weekends.

## FREMANTLE AWARD

Refinery Operations Manager, Rob Lowndes, accepted on behalf of the company, an inaugural Fremantle Award on Friday, 2nd May.

A total of 9 Fremantle Awards were presented by Fremantle City Council for outstanding contributions to the built environment of the city. Nearly 60 nominations were received and the award winners were selected by a jury and by public opinion. The nominations covered a broad range, from house renovations to our new store.

The award consists of a framed photograph of the store with a citation.

The citation reads:

"Awarded to CSR Limited for the North Fremantle Raw Sugar Store (1979-1980).

A port-related facility built to minimise the impact on residents of trucking raw sugar to the Mosman Park Refinery.

While building an honest, functional structure, great care was taken with the massing, finishes, colours and planting.

The result is an aesthetically pleasing building, well integrated into the industrial landscape surrounding it."



## THE GENTLE GAME OF BOWLS

While the game of lawn bowls appears a less physically taxing sport than many other, it must have its attractions. Several of our current employees, along with others not long retired, form a pretty healthy contingent of bowling fanatics.

People such as Peter Kelly, Doug Ellis and Jack Phillimore from the present workforce, having reached perhaps slightly maturer years, find the less physical aspects, along with the chess-like strategies of the game, very rewarding. Along with these is Paul Pantano, a member of the younger fraternity, who also finds the game a relaxing outlet.

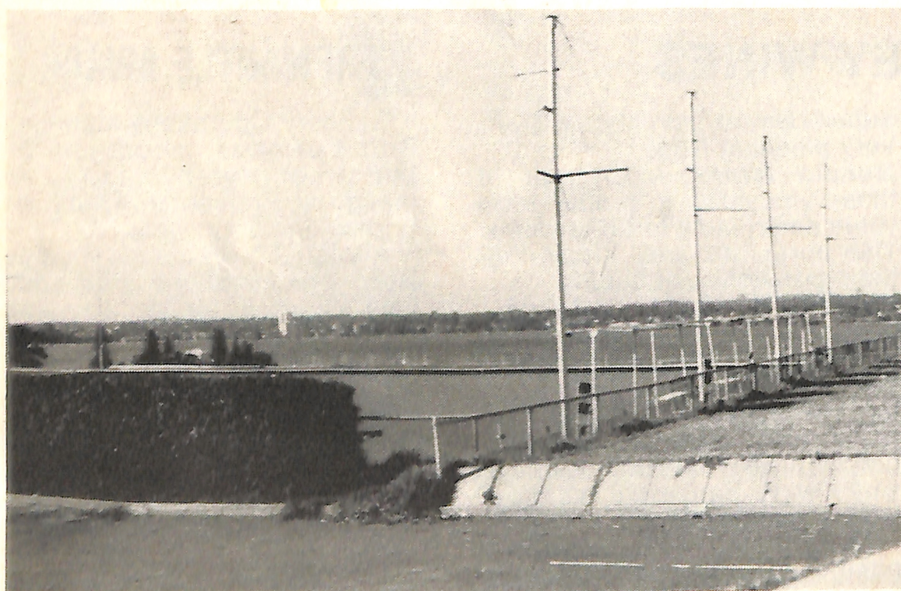
Ted Butters, Alf Adams, Sid Abercrombie, Mick Jaggard and Alf West are among the retired brigade who play.

The majority of them play at the Mosman Bowling Club, which, with the view of the Swan

and Perth that the clubhouse commands, must be one of the attractions. However, we're led to believe that as much practicing of bent arm movement is carried out inside the clubhouse as out, and this is one of the other attractions.

Several of the players have done well in various matches in the last few months. Paul Pantano has improved his game considerably and progressed from 5th division to 3rd division, quite a leap in such a short period of time. Peter Kelly was a member of a fours team which won the Club Handicap Fours Championship.

Bowls is not just a game of trundling an off shape ball up a strip of grass and hoping for the best, but the careful positioning of your bowls closest to the 'Jack' and keeping your opponents away, and at this we have some pretty fair exponents of the art.



The view from the Mosman Park Bowling Club.

## INS AND OUTS INS AND OUTS

It's good to see the Hesser ladies all back and in action. First we lost Fran with a broken jaw — a case of mum is the word. The we lost Jan with damaged leg ligaments and we lost the best pair on view in the factory. Fortunately they're both back in action and a visit to the Hesser station is as refreshing as it always was.

**How many people know that the whole factory was driven from one main engine situated in the engine room. Line shafts used to run the length of the pan floor, cooler floor, fugal floor, filter floor and through the char end. Only last year we replaced all the line shafts and flat belts in the char end.**

## (TOM STACY'S LAST REVENGE)

Two fitters had their photographs in the last issue of this magazine. Their names are revealed by reading down the first and last letters of the eight answers to this quiz.

1. MAMMOSET
2. \_\_\_\_\_
3. REGULATED
4. VERTICAL
5. \_\_\_\_\_
6. \_\_\_\_\_
7. \_\_\_\_\_
8. GENESIS

To help you, the answers have been broken down into their 25 syllables which have been arranged alphabetically: —

ATE, BER, CAL, CATE, DI, DOW, E, E, EN, GE, GEN, LA, LI, MA, MI, MO, NI, RA, REG, SET, SIS, TED, TI, U, VER.

### Clues

1. Kind of monkey.
2. Eliminate.
3. Controlled.
4. Upright.
5. Set free.
6. Bequeath.
7. Sign of the Zodiac.
8. First book of the Bible.

### Recipe

#### Pineapple juice wine

Canned pineapple juice 1.3 litres (43 fl oz)  
 Grape juice concentrate 250 g (9 oz)  
 Sugar 900 g (2 lb)  
 Citric acid 2 tsp  
 Grape tannin 1/2 tsp  
 Water approx 3 litres (5 pints)  
 Chablis yeast and nutrient

1. Mix all the ingredients together, pour into a fermentation jar, top up, fit an air-lock, ferment out.
2. Rack into a sterile storage jar, add one Campden tablet and when clear rack again.
3. Store for six months, then bottle. Serve cold as an aperitif or as a white table wine.